

# **A Collaborative Approach Towards Adaptive Management**

## **Freshwater Tidal Marsh Restoration Projects in the Anacostia River Watershed**

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Baltimore District

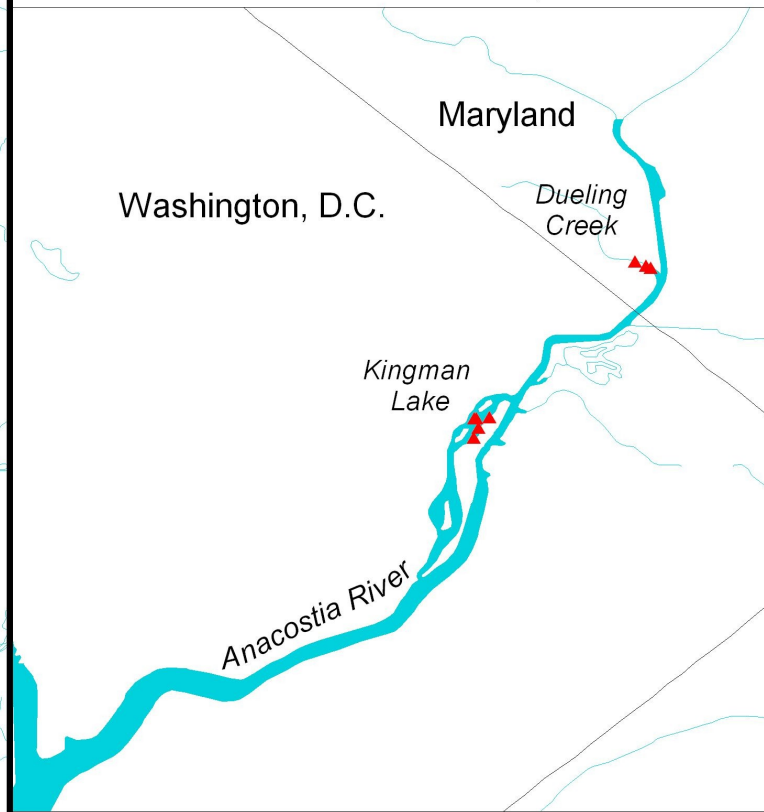
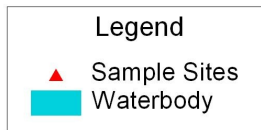
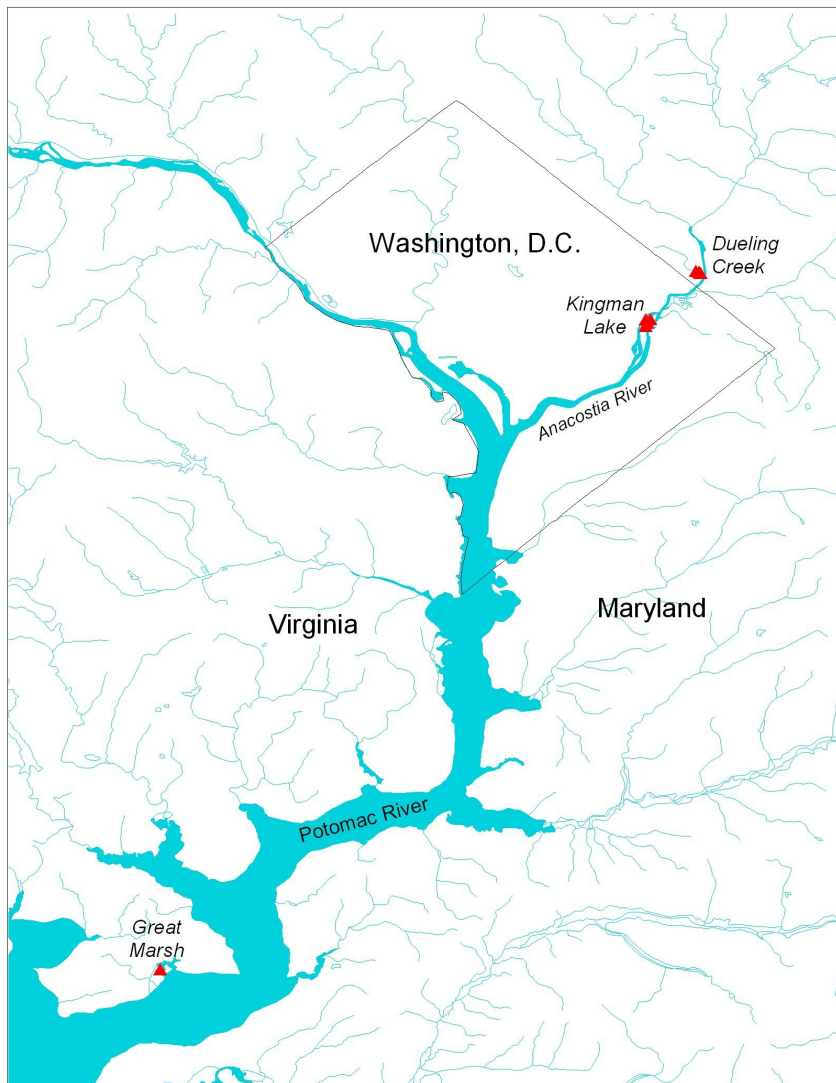
U.S. Army Corps of Engineers,

**Washington, D.C.**

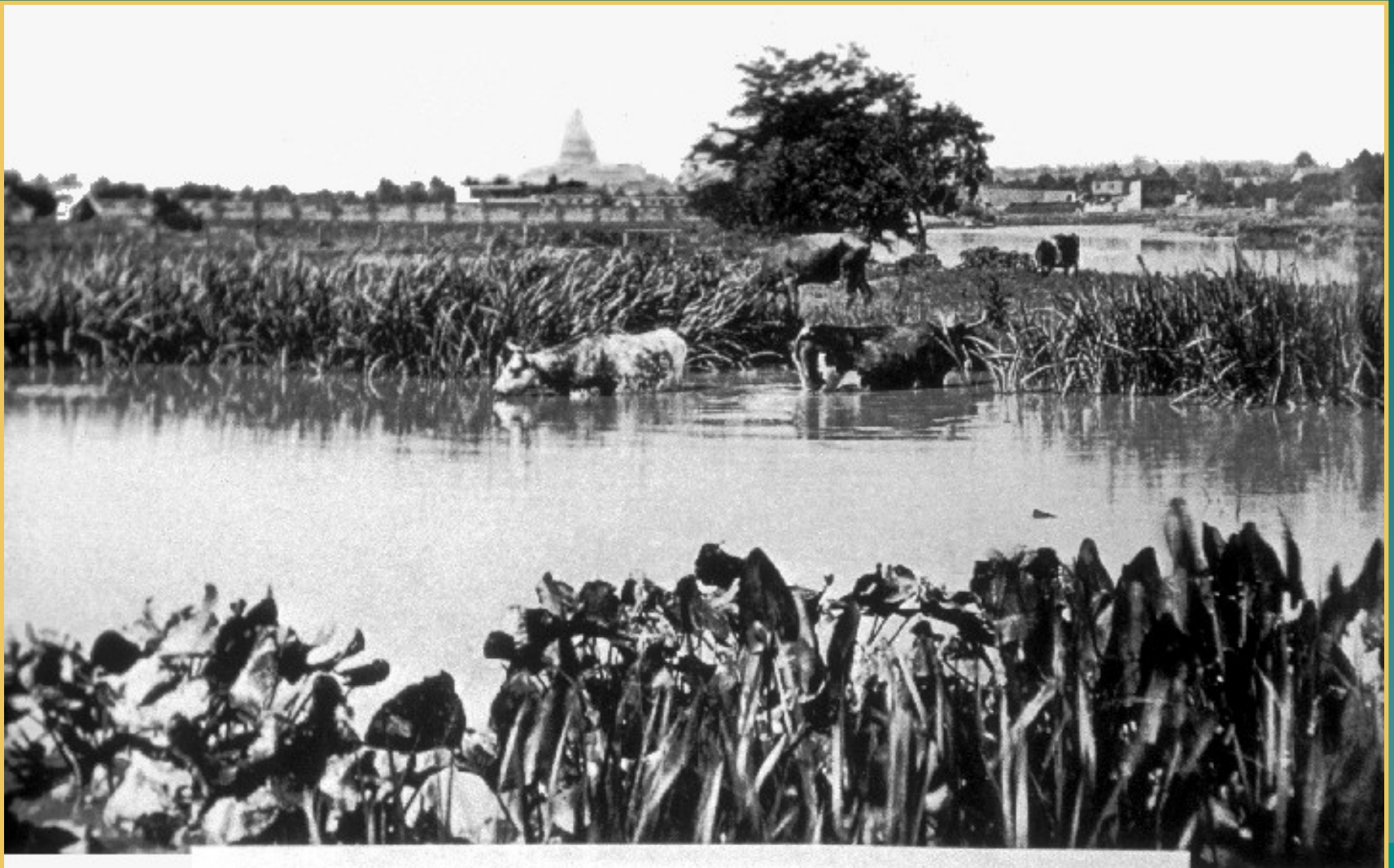
# Objectives

- ◆ **Describe Restoration Projects**
  - ◆ **Describe Monitoring & Adaptive Management Approach**
  - ◆ **Describe Collaboration on Adaptive Management Issues**
  - ◆ **Lessons Learned**
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- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

# Location Map



# Anacostia River - 1890



Anacostia River Marshes, circa 1890: This John Hiller photograph shows cows grazing not far from the Capitol.

# Kingman Lake Area in Late 1800's



# Anacostia River in 1927

During  
Kingman Lake  
Construction

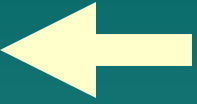


# Restoration

## Sites

- ◆ **Kenilworth Marsh (1993)**
  - ◆ **Kingman Lake Marsh (2000)**
  - ◆ **River Fringe Wetlands (2003)**
  - ◆ **Heritage Island Marsh (2006)**
  - ◆ **Dueling Creek - Urban Natural Reference Site**
  - ◆ **Patuxent River Marsh - Pristine Natural Reference Site**
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Maryland



District  
of  
Columb

Confluence  
with Potomac



**Anacostia Reconstructed Wetlands 2003**



# Kingman Lake

## After Restoration

*Photos courtesy of  
Dick Hammerschlag, USGS*



# River Fringe Wetlands After Restoration



# **Developed a Monitoring and Adaptive Management Plan**

- ◆ Developed a Tidal Wetlands Team
  - ◆ Team Collaborated on the M&AM Plan
  - ◆ Team agreed on reporting and decision making framework
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# Tidal Wetlands Partnership

- ◆ **Washington D.C. Department of Health**
  - ◆ **National Park Service**
  - ◆ **USACE - Baltimore District**
  - ◆ **USGS - Patuxent Wildlife Research Center**
  - ◆ **USFWS - Chesapeake Bay Field Office**
  - ◆ **U.S.E.P.A. - Region III**
  - ◆ **USDA - Wildlife Services**
  - ◆ **U.S. Botanic Gardens**
  - ◆ **University of Maryland**
  - ◆ **Anacostia Watershed Society**
  - ◆ **Earth Conservation Corps**
  - ◆ **Langston Golf Course**
- 

 **Original Team**

 **Expanded Team**

# Monitoring & Adaptive Management Approach

## ◆ **Team Framework**

- **Annual Reports**
- **Annual Meetings**
- **Additional Meetings as Needed**

## ◆ **Monitoring Elements**

- **Contaminants**
  - **Plant Community**
  - **Hydrology**
  - **Sediment Dynamics**
  - **Fauna**
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# Kingman Lake Marsh Restoration 1999 - 2003



# Three Major Problems

## ◆ **Non-native Invasive Plants**

- *Phragmites australis*
- *Lythrum salicaria*

## ◆ **High Density of Resident Canada Geese**

- Eating plants
- Pulling up plants
- Loss of sediments

## ◆ **Hydrology Issues**

- Record dry years followed by record wet years
  - Urban hydrology
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# Wetlands Team: Non-native Plants

- ◆ Purple loosestrife – wait and see
- ◆ Common Reed – treat with herbicide





## Kenilworth Gardens



Phragmites treated in 2001 and 2002



The path of the airboat



Phragmites treated only in 2002

# Wetlands Team: Resident Geese/ Hydrology

- ◆ Temporary Fencing
- ◆ Alternative Plant Selection
  - Greater range of H<sub>2</sub>O levels
  - Less palatable to Canada geese
- ◆ Resident Goose Management Plan
  - EA for immediate egg oiling
  - EA for long-term plan
    - ◆ Public Outreach
    - ◆ Population Estimates
    - ◆ Population Goals
    - ◆ Population Management Alternatives

## Resident Canada Geese at Kingman Lake



# Temporary Measures



# EGG Oiling



## Wild Rice in Fencing

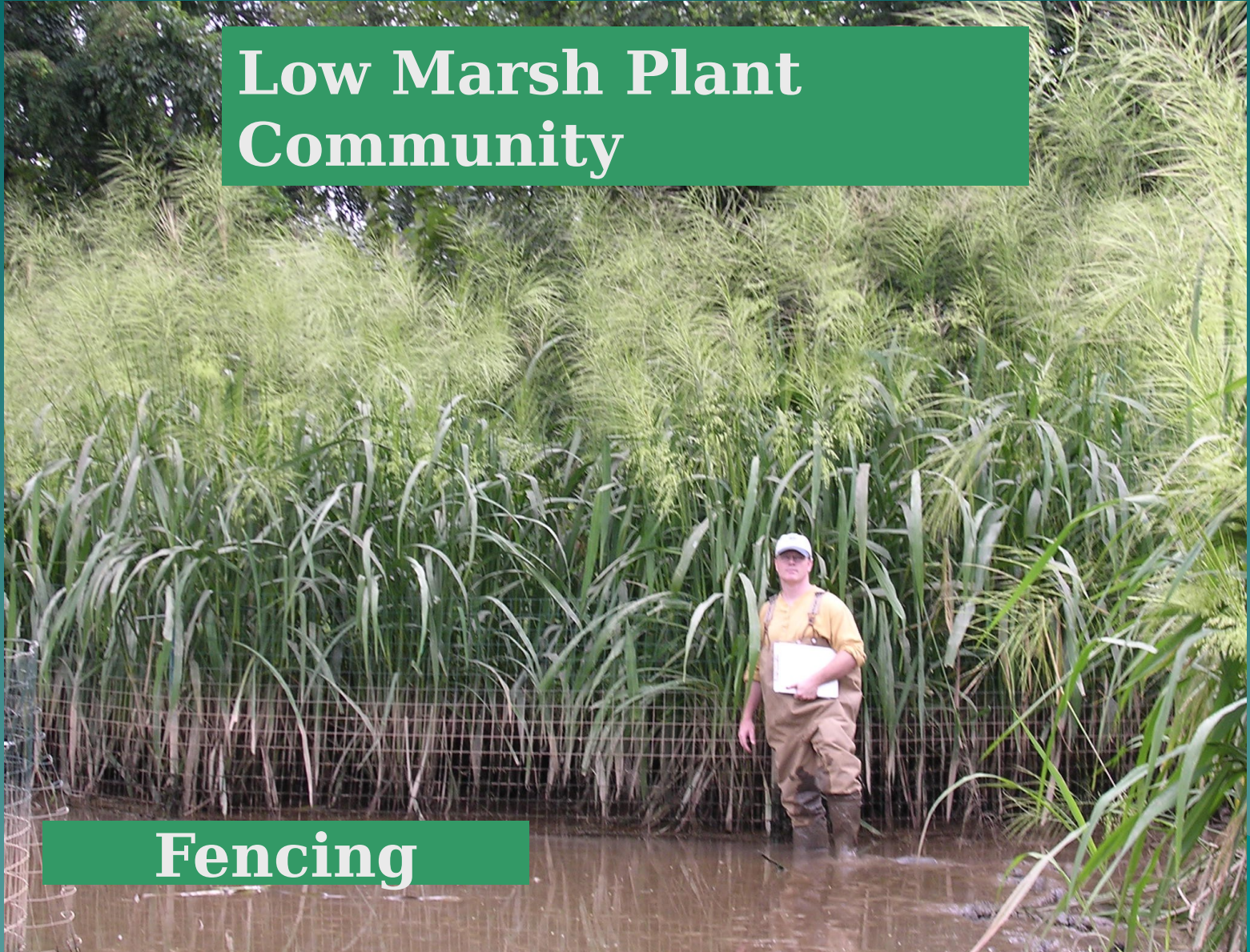
**American Lotus**  
**Green Arrow Arum**

2005.09.09



# Low Marsh Plant Community

Fencing



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**Original Team**



**Expanded Team**

# Lessons Learned

- ◆ It takes a Village to Restore an Ecosystem
  - ◆ Use \$'s as seeds
  - ◆ Use time as water
  - ◆ Use personal commitment as sun light
  - ◆ Produce the fruits of success & sustainability
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# Questions ???



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